

I claim:

1. A method for controlling an engine of a marine propulsion system, comprising the steps of:
  - 5       sensing an impending shift event from a neutral gear position;
  - determining a desired engine operating speed during said shift event; and
  - changing the operating speed of said engine to said desired engine operating speed, in response to said impending shift event, by performing a step selected from the group consisting of changing the ignition timing of said engine and
  - 10      changing the status of an idle air control valve.
2. The method of claim 1, wherein:
  - said sensing step is performed by a neutral position switch switch.
- 15     3. The method of claim 1, wherein:
  - said sensing step is performed by a potentiometer.
4. The method of claim 1, wherein:
  - said sensing step is performed by a magnetoelastic sensor.
- 20     5. The method of claim 1, wherein:
  - said desired engine operating speed during said shift event is determined as a function of engine temperature.
- 25     6. The method of claim 1, wherein:
  - said engine temperature is determined by measuring the coolant temperature of said engine.

7. The method of claim 1, further comprising:

determining a speed of a marine vessel on which said marine propulsion system is operating.

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8. The method of claim 7, wherein:

said desired engine operating speed during said shift event is selected as a function of said speed of said marine vessel.

10 9. The method of claim 1, wherein:

said step of changing the ignition timing comprises the step of retarding the ignition timing.

10. The method of claim 1, wherein:

15 said changing step comprises the step of decreasing said desired engine operating speed during said shift event.

11. The method of claim 1, wherein:

20 said changing step comprises the step of increasing said desired engine operating speed during said shift event.

12. A method for controlling an engine of a marine propulsion system, comprising the steps of:

25 determining a speed of a marine vessel on which said marine propulsion system is operating;

sensing an impending shift event from a neutral gear position;

determining a desired engine operating speed during said shift event, as a function of said speed of said marine vessel, by performing a step selected from the group consisting of changing the ignition timing of said engine and changing the status of an idle air control valve; and

5 changing the operating speed of said engine, in response to said impending shift event, to said desired engine operating speed during said shift event.

13. The method of claim 12, wherein:

said operating speed changing step comprises the alternative steps of  
10 decreasing the operating speed of said engine when said speed of said marine vessel is below a first predetermined threshold speed and increasing the operating speed of said engine when said speed of said marine vessel is above a second predetermined threshold speed.

15 14. The method of claim 13, further comprising:

determining a desired operating speed of said engine as a dual function of engine temperature and said speed of said marine vessel.

15. The method of claim 14, wherein:

20 said engine temperature is determined by measuring the coolant temperature of said engine.

16. The method of claim 13, wherein:

25 said step of changing the ignition timing comprises the step of retarding the ignition timing.

17. The method of claim 16, wherein:

said changing step comprises the step of decreasing said desired engine operating speed during said shift event.

18. A method for controlling an engine of a marine propulsion system, comprising  
5 the steps of:

determining a speed of a marine vessel on which said marine propulsion system is operating;

measuring a temperature of said engine;

selecting a desired engine operating speed during said shift event as a

10 function of said temperature of said engine and said speed of said marine vessel ;

sensing an impending shift event from a neutral gear position; and

changing the operating speed of said engine to said desired engine operating speed during said shift event, in response to said impending shift event, by performing a step selected from the group consisting of changing the ignition timing of said engine and changing the status of an idle air control valve.

19. The method of claim 18, wherein:

20 said engine temperature is determined by measuring the coolant temperature of said engine.

20. The method of claim 19, wherein:

said step of changing the operating speed of said engine to said desired engine operating speed during said shift event comprises the steps of changing the ignition timing of said engine and changing the status of an idle air control valve.